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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,457	11/28/2001	Dean Thetford	P 282717	3055

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 08/13/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/890,457

Applicant(s)

THETFORD ET AL.

Examiner

Callie E. Shosho

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-30 and 32 is/are rejected.
- 7) ☒ Claim(s) 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 5/23/03, Paper No. 8. The new grounds of rejection set forth below are necessitated by applicants' amendment and thus, the following action is final.

2. **NOTE:** Applicants' amendment filed 5/23/03 cancels claims 1-14 and 17, amends claims 15 and 16, and adds new claims 18-33.

However, there were only 16 claims in the specification as originally filed. Thus, the amendment to cancel claim 17 has not been entered given that there is no claim 17 to cancel.

Subsequently, newly added claims 18-33 are misnumbered given that the numbering of any added new claims must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (see paragraph 3 below) and have been renumbered as claims 17-32.

It is further noted that it appears applicants meant to amend claims 14 and 15 and cancel claim 16. While the amended claim 15 presented by applicants follows the claim language of original claim 14 and amended claim 16 presented by applicants follows the claim language of original claim 15, the amendment has been entered as set forth by applicants. Thus, the pending claims are claim 15, drawn to a method as set forth on page 2 of applicants' amendment filed 5/23/03, claim 16, drawn to a substrate as set forth on page 3 of applicants' amendment filed 5/23/03, and the newly added claims which are renumbered as discussed in paragraph 3 below.

Claim Objections

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

As discussed in paragraph 2 above, the specification as originally filed contained 16 claims. Thus, in accordance with Rule 1.126, the numbering of the new claims added in the amendment of 5/23/03 should have started with 17. Thus, misnumbered claims 18-33 (as well as any corresponding claim dependencies) have been renumbered as 17-32.

The following action refers to the claims as correctly numbered, i.e. claims 17-32.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 15-16, 17-24, 28-30, and 32 are rejected under 35 U.S.C. 102(a) as being anticipated by Schofield et al. (U.S. 5,837,046) taken in view of the evidence in GB 2001083.

Schofield et al. disclose method for drop-on-demand printing an image on a substrate comprising applying non-aqueous ink to substrate by drop-on-demand printing wherein the ink, which has viscosity of 6-30 MPa s, comprises pigment, nonaqueous medium which comprises aliphatic hydrocarbon solvent and oleyl alcohol and possesses solubility parameter of 0.1-5

MPa^{1/2}, and dispersant. The dispersant is formed by reacting polyalkyleneimine with polyester having free carboxylic groups (col.1, lines 19-31, col.2, lines 33-39, col.2, line 65-col.3, line 13, col.3, lines 26 and 59-62, and col.4, lines 19-20).

In describing the dispersant, Schofield et al. refers to GB 2001083 et al. for specific examples of the dispersant. Thus, GB 2001083 discloses dispersant produced by reacting polyalkyleneimine that has molecular weight of 10,000-100,000 with polyester derived from hydroxycarboxylic acid such as hydroxystearic acid that has average molecular weight of 1600. The ratio of polyester to polyethyleneimine is 1:1 to 10:1 (page 1, lines 7-9, 12-15, 22-24, 40-42, and 48-55, page 2, lines 6-7, 43-51, 58-60, and 62-64, page 2, line 65-page 3, line 1, page 3, lines 39-46, and example 23). Given that the dispersant is prepared by reacting polyethyleneimine with hydroxystearic acid which is identical to the reaction used in the present invention, it is clear that such reaction will inherently produce dispersant of presently claimed formula (1).

In light of the above, it is clear that Schofield et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schofield et al. (U.S. 5,837,046) in view of GB 2001083.

The disclosure with respect to Schofield et al. in paragraph 3 above is incorporated here by reference.

The difference between Schofield et al. and the present claimed invention is the requirement in the claims of fluidizing agent.

GB 2001083, which is drawn to ink composition, discloses the use of fluidizing agent in order that the ink possesses enhanced fluidity (page 2, line 65-page 3, line 1).

In light of the motivation for using fluidizing agent disclosed by GB 2001083 as described above, it therefore would have been obvious to one of ordinary skill in the art to use fluidizing agent in the ink of Schofield et al. in order to produce fluid ink which would be easier to handle and print, and thereby arrive at the claimed invention.

8. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schofield et al. (U.S. 5,837,046) in view of WO 97/15633.

The disclosure with respect to Schofield et al. in paragraph 3 above is incorporated here by reference.

The difference between Schofield et al. and the present claimed invention is the requirement in the claims of RMV modifier.

WO 97/15633, which is drawn to ink composition, disclose the use of RMV modifier such as novolak resin in order to produce an ink with improved performance that can print for long periods without cleaning, replacement of nozzle plates of ink jet head, or flooding (page 3, line 18-page 5, line 3 and page 8, first full paragraph).

In light of the motivation for using RMV modifier disclosed by WO 97/15633 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such modifier in the ink of Schofield et al. in order to produce an ink that can print for long

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periods without cleaning, replacement of nozzle plates of ink jet head, or flooding, and thereby arrive at the claimed invention.

9. Claims 15-16, 17-30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/15633 in view of GB 2001083.

WO 97/15633 disclose method for drop-on-demand printing an image on a substrate comprising applying non-aqueous ink to substrate by drop-on-demand printing wherein the ink, which has viscosity of less than 15 mPa s, comprises pigment, solvent which possesses solubility parameter less than 7 MPa^{1/2} and comprises C₁₀—C₃₀ alcohol and aromatic or aliphatic hydrocarbon solvent, RMV modifier which is novolak resin, and dispersant (page 1, third full paragraph, page 3, third full paragraph to paragraph bridging pages 4-5, page 5, second full paragraph to page 7, last paragraph, page 8, first full paragraph, page 17, lines 1-3, and claim 9).

The difference between WO 97/15633 and the present claimed invention is the requirement in the claims of (a) specific type of dispersant and (b) fluidizing agent.

With respect to difference (a), GB 2001083, which is drawn to ink composition, discloses dispersant produced by reacting polyalkyleneimine which has molecular weight of 10,000-100,000 with polyester derived from hydroxycarboxylic acid such as hydroxystearic acid which has average molecular weight of 1600. The ratio of polyester, i.e. hydroxystearic acid, to polyethyleneimine is 1:1 to 10:1 (page 1, lines 7-9, 12-15, 22-24, 40-42, and 48-55, page 2, lines 6-7, 43-51, 58-60, and 62-64, page 2, line 65-page 3, line 1, page 3, lines 39-46, and example 23). Given that the dispersant is prepared by reacting polyethyleneimine with hydroxystearic

acid which is identical to the reaction used in the present invention, it is clear that such reaction will inherently produce dispersant of presently claimed formula (1).

The motivation for using such dispersant is that the dispersant effectively defloculates the pigment and produces a fluid ink composition that is easier to handle (page 2, lines 55-61 and page 4, lines 46-48).

In light of the motivation for using specific type of dispersant disclosed by GB 2001083 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dispersant in the ink of WO 97/15633, and thereby arrive at the claimed invention.

With respect to difference (b), GB 2001083, which is drawn to ink composition, discloses the use of fluidizing agent in order that the ink possesses enhanced fluidity (page 2, line 65-page 3, line 1).

In light of the motivation for using fluidizing agent disclosed by GB 2001083 as described above, it therefore would have been obvious to one of ordinary skill in the art to use fluidizing agent in the ink of WO 97/15633 in order to produce fluid ink which would be easier to handle and print, and thereby arrive at the claimed invention.

Response to Arguments

10. Applicants' arguments regarding Thetford et al. (U.S. 5,700,395) have been considered but they are moot in view of the discontinuation of this reference against the present claims.

11. Applicants' arguments filed 5/23/03 have been fully considered but, with the exception of arguments relating to Thetford et al., they are not persuasive.

Specifically, applicants' argue that GB 2001083 discloses dispersant with different weight ratio of polyester to polyalkylene imine than presently claimed.

Applicants argue that GB 2001083 disclose weight ratio of polyester to polyalkylene imine of 1 to 10 with the preferred range being 2 to 5, which preferred range is outside the scope of the present claims, and that all the examples of GB 2001083 disclose weight ratio of polyester to polyalkylene imine of either about 1:1 or about 2:1, which is also outside the scope of the present claims.

However, while it is agreed that the preferred weight ratio of polyester to polyalkylene imine disclosed by GB 2001083 is outside the scope of the present claims, "nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims." In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). Further, while none of the examples of GB 2001083 teach weight ratio of polyester to polyalkylene imine as presently claimed, it is noted that, "applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others." In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). A fair reading of the reference as a whole discloses that GB 2001083 disclose weight ratio of polyester to polyalkylene imine of "desirably greater than 1 and preferably in the range of 1 to 10" which clearly overlaps the ranges of 7:1 to 20:1 (claim 15), 9:1 to 13:1 (claim 9), 7:1 to 13:1 (claim 30), and 10:1 to 13:1 (claim 31) presently claimed.

Applicants point to the comparative data of the present specification as evidence of criticality regarding weight ratio of polyester to polyalkylene imine. In the data, ink comprising dispersant within the scope of the present claims, i.e. possessing weight ratio of polyester to

polyalkylene imine of 7:1, 10:1, and 13:1, is compared with ink comprising dispersant outside the scope of the present claims, i.e. possessing weight ratio of polyester to polyalkylene imine of 3.5:1. It is shown that the inks of the present invention are superior in terms of Receding Meniscus Velocity (RMV). However, the data is not persuasive for the following reasons.

Firstly, there is not proper side-by-side comparison between inks within the scope of the present claims and ink outside the scope of the present claims. That is, while all the inventive examples utilize identical amounts of pigment, dispersant, fluidizing agent, and solvent, the comparative examples use higher amounts of dispersant and lower amounts of solvent as compared to the inventive examples. Thus, it is not clear if the difference in RMV values is due to the difference in the amounts of dispersant and solvent utilized or to the weight ratio of polyester to polyalkylene imine. Clarification is requested.

Further, as seen in paragraph 3 above, in one of the rejections of record, Schofield et al. is used as a reference against the present claims under 35 USC 102. Schofield et al. disclose method for drop-on-demand printing an image on a substrate comprising applying non-aqueous ink to substrate by drop-on-demand printing wherein the ink comprises pigment, nonaqueous medium which comprises aliphatic hydrocarbon solvent and oleyl alcohol and possesses solubility parameter of $0.1-5 \text{ MPa}^{1/2}$, and dispersant. The dispersant is formed by reacting polyalkyleneimine with polyester having free carboxylic groups. In describing the dispersant, Schofield et al. refers to GB 2001083 et al. for specific examples of the dispersant. However, as cited in MPEP 706.02(b), it is noted that a rejection based on 35 USC 102(a), can only be overcome by (a) persuasively arguing that the claims are patentably distinguishable from the prior art, (b) amending the claims to patentably distinguish over the prior art, (c) filing an

affidavit under 37 CFR 1.131, (d) filing an affidavit under 37 CFR 1.132 showing that the reference invention is not by “another” or (e) perfecting priority under 35 USC 119(e) or 120. As can be seen, comparative data is not sufficient to overcome an anticipatory rejection under 102(a).

Allowable Subject Matter

12. Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 31 would be allowable is re-written in independent form as described above given that the “closest” prior art, Schofield et al. and GB 2001083, each teach dispersant that is formed by reacting polyalkyleneimine with polyester having free carboxylic groups. There is no disclosure in either reference of dispersant that is formed by reacting polyamine with polyester as required in present claim 31.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

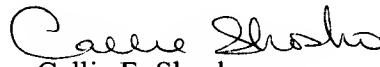
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
August 8, 2003